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## Social stereotype as a learning tool

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**Abstract**

The goal of the study was to investigate effects of activation of social stereotypes associated with certain level of intelligence on a mental task. In Experiment 1, undergraduate students were asked to complete a mid-term test. Prior to knowledge testing they were primed either with stereotypes of a professor or a charwoman. The results showed that students who were primed with the stereotype of a university teacher performed slightly better. In Experiment 2, prior the mental task (learning of foreign words), the subjects were primed by stereotypes of classical or techno music listeners. The results indicated that activation of the stereotype of a classical music listener led to better results in learning foreign words than activation of the stereotype of a techno music fan.

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**1. Introduction**

The present study deals with certain cognitive processes that can to some extent influence the performance in tests of learned knowledge. It is widely known that a success in exams is not based only on a sum of acquired knowledge, but also on ability to keep full concentration on a current task as well as on an effective retrieval of information stored in long-term memory. In another words, the effective functioning of cognitive system in a course of an exam or a test is needed.

Educational psychologists focused their attention mainly for searching mechanisms of coping test anxiety (e.g. a classic study by Alpert and Haber, 1960). In contrast, in the present study we focused on a different mechanism, which is not typically the subject of interest of educational psychologists – the psychological mechanism called *priming*. A certain kind of psychological priming before a mental performance results in specific “adjustment” of cognitive system. Consequently, this “adjustment” of cognitive system affects subsequent performance. Although the effect of priming was mainly studied in the psychology of perception, in the past decade social psychology offered a surprising number of evidences about influence of activation of some social stereotypes on a subsequent performance or behavior.

Generally, stereotypes can be seen as cognitive structures that include knowledge, beliefs and expectations about behavior of members of various social groups. Typically, studies in social psychology were based on prior activation

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of a certain social stereotype with a consequent task or performance. The effect of activation of particular social stereotypes on a certain behavior was investigated.

During the last two decades, a number of experiments were conducted, which documented the effect of activation of various social stereotypes on behavior or mental performance (see Wheller & Petty, 2001). The experiments mainly took attention on effects of stereotypes that might cause some social awareness of disability - for example the stereotype of "Negro" (in the U.S.A.), an old man (physical disability), or a woman (in the situation where the male performance is expected). In the course of the experiment particular social stereotype is activated via psychological mechanism of priming.

For the processes associated with activation of social stereotypes the term *stereotype threat* is used. The stereotype threat is defined as a socially premised psychological threat that arises when one is in a situation or doing something for which a negative stereotype about one's group applies (Steele, 1997). An individual starts to worry that he/she will be judged by a group stereotype, which in turn can affect his/her performance in different types of tasks. For example, it was observed that activation of the stereotype "Negro" in African-Americans leads to a deterioration in a school performance test (Steele & Aronson, 1995).

While large body of studies was devoted to the impact of stereotype threat, social psychologists Dijksterhuis and van Knippenberg (1998) investigated in a series of experiments, whether activation of the stereotype of a "scholar" could improve a mental performance. In contrast, they supposed that activation the stereotype of a secretaries or football brawler could deteriorate a mental performance. The results revealed that the activation of the professor stereotype prior the performance resulted in a better score from the mental task than activation of stereotypes of a secretary or football brawler.

The present study describes results of two experiments. In the first experiment prior to mid-term test participants were primed by stereotypes of professor or charwomen. In the second experiments prior to learning foreign words participants were primed by stereotypes of classical music listener or techno music listener. In the first experiments participants were primed with stereotypes, which are quite clearly linked with certain level of mental efficiency and intelligence. In contrast, in the second experiment participants were primed with stereotypes of musical fans, which contain also stereotypical beliefs about their mental efficiency and intelligence. There are evidences that listeners of classical music are stereotypically perceived as to be more intelligent than fans of various genres of popular music (e.g. Zillmann & Bhatia (1989). Thus, the goal of the present study was to investigate the effect of various social stereotypes containing beliefs about a level of intelligence and mental efficiency on learning or memory recalling.

## **2. Experiment 1**

The aim of the experiment was to study the effect of activation of stereotypes of a professor or a charwoman prior to an exam test. The experiment was conducted in real conditions. Students were asked to complete a mid-term test from psychology. Prior the test they were primed either by the stereotype of a professor or a charwoman.

### *2.1. Method*

#### *2.1.1. Sample*

131 undergraduate students (70 females) took part in the experiment. They aged between 20-22 years. They studied either Informatics, Financial Management, Tourism Management, or Sports Management.

#### *2.1.2. Procedure*

Prior to mid-term test, the participants were primed either by stereotypes of a professor or a charwoman. They were asked to imagine a typical professor or a typical chairwoman and describe his/her habits, knowledge and experiences, typical activities, interests, values and ways of his/her dressing. The priming lasted 7 minutes. After the priming they were asked to complete them mid-term test from psychology, which consisted of 13 questions (multiple choice questions) and lasted about 15 minutes.

### 2.1.3. Results

First, descriptive statistics of test scores (number of correctly answered questions) obtained by participants exposed to the both types of priming was computed. Priming by the stereotype of a professor led to slightly better results. However, the differences between both groups were non-significant. In the next step of analyses, we took into an account specific features of study fields of our participants in order to obtain more homogenous sample. Specifically, the sample was not homogenous enough due to some differences between students of particular fields of study. Namely students of Tourism Management (mostly females) and female students of Financial Management have substantially better studying results than the students of the others fields. Thus, we chose a subgroup of students, males studying Informatics, Financial Management and Sports Management. In this subgroup of participants the t-test for independent samples revealed significant differences between test scores of participants, who were exposed to the stereotype of a professor in comparison with those, who were exposed to the stereotype of a chairwoman (see Tab. 1)

Table 1. Average number of correctly answered questions

Groups	Stereotype professor	Stereotype chairwomen	N	t value
Whole sample	10.2	9.7	131	t = 1.350 N.S.
Males only	10.2	9.0	61	t = 1.824 N.S.
Females only	10.4	10.4	70	t = -0.018 N.S.
Subgroup of Males	10.1	8.6	50	t = 2.493 p = 0.016**

Note: The test consisted of 13 questions.

## 3. Experiment 2

The goal of the experiment was to study the effect of activation of the stereotypes of a classical music listener or a techno listener on learning and recalling foreign words. The participants were asked to learn unknown Latin words. Prior learning, they were primed either by the stereotype of a classical music listener or techno listener.

### 3.1. Method

#### 3.1.1. Sample

88 undergraduate students (56 females) aged 19-22 years took part in Experiment 2. They studied either Informatics, Financial Management or Tourism Management.

#### 3.1.2. Procedure

In the first step of the experiment slides showing typical forms of behaviors of either classical music or techno music listeners in a course of a concert/performance were presented to the subjects. Further, the subjects were asked to write down a short report about these typical forms of behaviour of musical fans. Next, during six minutes period the subjects were asked to learn twenty Latin words. Finally, they were tested from their knowledge.

### 3.2. Results

The analysis of variance indicated the significant effect of the type of stereotype activation [ $F(1,87)=4.254$ ,  $p < .05$ ] on performance in the mental task. Neither gender nor interactions had significant effects. Results indicated that the activation of the stereotype of classical music listeners prior to the mental task resulted in a slightly better score in the test of learning foreign words compared to activation of the stereotype of techno fans (see Tab. 2).

Table 2 Average number of correctly recalled words

Groups	Stereotype classical music listener	Stereotype techno listener	N
	Mean (S.D.)	Mean (S.D.)	
Whole sample	14,58 (4.09)	12,65 (4.29)	88
Males only	13,63 (4.68)	11,75 (4.07)	32
Females only	15,27 (3.52)	12,96 (4.42)	56

Note: There were 20 words in the test.

#### 4. Discussion

Our study demonstrated that activation of the stereotype of intelligent and educated person prior to the knowledge test has certain impact on a subsequent performance. However, the effect of the stereotype activation was not too large. There is a question whether these findings have only relevancy for the psychological theory, or could be utilized in educational praxis. We believe that these findings may have at least two practical outcomes. First, there are programs of stress management for students, which usually include information about healthy lifestyle principles and about strategies for coping with exam anxiety. We suggest that these programs could be enhanced in the directions demonstrated in our study. The techniques of building confidence in own abilities and knowledge also can be combined with techniques derived from the mechanisms of activation of positive stereotypes of people with high intellectual performance.

Second, it was shown that certain information or ideas may influence subsequent performance. For example, various negative statements about the personal qualities of students could activate psychological mechanisms of stereotype priming with consequent effects on a performance. Social psychology has demonstrated how these processes work, and that may also include the impact of information that can be presented as a rather hidden way.

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